DOCUMENT RESUME

ED 392 389 IR 017 624

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TITLE Interactive Training for Information Access: The InfoMagic Multimedia Project at Chapman University.
PUB DATE 29 Oct 95
NOTE 11p.; Paper presented at the Multimedia Symposium (Damman, Saudi Arabia, December 5-6, 1995).
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Access to Information; Courseware; *Curriculum Development; Higher Education; *Information Skills; Information Technology; Instructional Materials; Internet; Learner Controlled Instruction; *Models; *Multimedia Instruction; Nontraditional Education; Online Searching; Program Implementation; Search Strategies; *Skill Development; Student Evaluation; Universities
IDENTIFIERS *Chapman University CA; InfoMagic

ABSTRACT

This paper proposes a new model for developing information access skills in an academic environment. In order to meet the increasing demand for "research competence" among students and faculty, it is necessary to move beyond traditional lecture formats and develop interactive multimedia instructional units which exploit ongoing advances in digital imaging, video and sound technologies. Such advances not only make instructional units more compelling, but when developed in an interactive programming environment, allow learners to practice realistic simulations of Internet navigation and database search techniques. The proposed model includes procedures for involving "in-house" artistic talent and user input into the development process, and ways of integrating both analog video and digitally-based interactive multimedia units into the overall university curriculum. The model allows for both the automatic tracking and reporting of student progress and for user input into model design. The second part of the paper shows how the model is being implemented in an actual university setting. The conclusion summarizes the theoretical and practical issues raised and proposes modifications to improve the model. (Author)

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ED 392 389

Interactive Training for Information Access: The InfoMagic Multimedia Project at Chapman University

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29 October 1995

IR017424

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Abstract

This paper proposes a new model for developing information access skills in an academic environment. In order to meet the increasing demand for 'research competence' among students and faculty, it is necessary to move beyond traditional lecture formats and develop interactive multimedia instructional units which exploit ongoing advances in digital imaging, video and sound technologies. Such advances not only make instructional units more compelling, but when developed in an interactive programming environment, allow learners to practice realistic simulations of internet navigation and database search techniques.

The proposed model includes procedures for involving 'in-house' artistic talent and user input into the development process, and ways of integrating both analog video and digitally-based interactive multimedia units into the overall university curriculum. The model allows for both automatic tracking and reporting of student progress and for user input into model design. The second part of the paper shows how the model is being implemented in an actual university setting. The conclusion summarizes the theoretical and practical issues raised in the paper and propose modifications to improve the model.

The first section of this paper will discuss the theory and structure of a proposed interactive training model for information access. The second section will deal with problems related to the implementation of the model in an actual university setting. The conclusion will summarize the theoretical and practical issues raised in the paper and propose modifications to improve the model.

Studies have indicated a steady increase in the use of interactive multimedia programs among both students and teachers at the university level (Schwier 1993; Pilkington 1993). This rise in interest coincides with a growing awareness among educators of the importance of 'learner controlled environments' to the learning process (Collins 1993). 'Passive consumption' media such as videotape and some of the less interactive CAI (Computer Assisted Instruction) programs are being spurned in favor of the more dazzling interactive multimedia products (Kizzier 1994). Universities are increasingly committing themselves to substantial investments in multimedia systems in classrooms and media centers (Barker 1995; Groomes 1994), while multimedia 'learning technology' has been identified as a key growth sector in the international marketplace (Benson 1994).

Amid this drive to expand the capacity of universities to provide multimedia alternatives to classroom instruction, it has become apparent that one of the most important skills that universities strive to bestow upon their students —the ability to do competent independent research, or 'research competence', has been largely bypassed by the multimedia revolution. As a result, both students and teachers continue to be dependent on traditional teaching modes for learning how to access information via the growing array of electronic tools associated with the internet, WEB and on-line databases.

In April 1995, the InfoMagic development program was launched at Chapman University expressly to address this disparity. The first challenge was to identify the information access skills that were both relevant across the curriculum and which lent themselves to being taught through a multimedia, computer assisted instruction model. After extensive discussions with the Library Director, faculty members, students and other librarians, it was determined that needs ranged from basic computer literacy (navigating Windows, System 7, using a mouse, etc.) to more research specific domains such as how to log-on to and search the internet, World Wide Web and electronic databases.

Typically, such problems had been dealt with on a walk-in 'crisis' bias, when students or faculty facing research deadlines approached reference librarians or computer support staff for a crash course in information access. Although a lack of rudimentary computer skills was an evident problem in the university community, it was decided to limit the first InfoMagic training module to information access skills, while relying on the micro-computing staff to cover basic computer competency.

To maximize the pedagogical viability of the model, it was decided that the model should enhance 'student control' of the learning environment by providing a variety of self-correcting interactive quizzes, and that it should actively engage student interest by utilizing a variety of compelling visual and aural media components such as sound, video, animation and high resolution photographic images. It was also decided that the model should be designed for and administered to all incoming freshman and hence be appropriate for their knowledge level and attention span. The model should allow for independent, self-administered execution and provide an automatic progress-tracing mechanism which would provide freshman instructors with printed progress reports for each student. The model should also incorporate an on-line survey to supply student 'computer literacy' data and user ideas for improving the tutorial, and include provisions for coordinating interactive content with that of existing instructional formats. Finally, I felt that the model should include self-sustaining production procedures, relying only upon existing university resources to develop multimedia instructional units based on the model.

Specific development guidelines were drawn-up based on this model and work was begun in April 1995. The result was a 30 - 40 minute interactive multimedia computer module and a 6 minute stand-alone video. The stand-alone video, 'Info Hotline', is essentially an inspirational 'promotional film' which identifies and promotes information access tools — such as the internet, World Wide Web, library on-line catalog and CD-ROM databases — and their location on campus. This video was produced by 'in-house' university talent from the Library, and the Media Services, Film and TV, and Music Departments.

The interactive multimedia computer program, 'Library Explorer', which provides in-depth hands-on practice for the information access categories addressed in the video, was developed by me over the course of a

three month period. MacroMedia Director was used as the primary development platform and programming environment. 3-D models were rendered in Adobe Dimensions and animated in the QuickTime video format using Adobe Premiere. Video clips were digitized then edited in Premiere. High resolution photographs of campus information access technologies and sites were scanned into digital format and edited in Adobe Photoshop. Interactive routines were programmed with Lingo, Director's scripting language, which is similar to Basic and HyperTalk.

In this multimedia unit, students are introduced to campus information access sites and participate in realistic database search and internet/WEB navigation simulations. They also receive hands-on practice of Boolean search techniques and simulated e-mail sessions. At the end of the tutorial, they are asked to evaluate the interactive experience and their input is saved to disk for later analysis.

The finished interactive multimedia program occupies approximately 100 MB of hard disk space and is booted off a floppy disk which is distributed free to all incoming freshmen. The program is installed in 25 Power Macintosh computers in a computer lab on central campus. As the students complete each stage of the interactive program, their progress is recorded to a data file on the diskette. Finally, the students return their diskettes to the Library, where the data file is printed-out as a progress report and distributed to their Freshman Seminar instructors.[1]

In September 1995, the interactive multimedia module was successfully integrated into the Library's existing bibliographic instruction series. During the first five weeks of classes, all incoming freshman were guided through a three stage training process:[2]

1. The incoming Freshman class was divided into groups of about 60 students each. These groups are assembled into small auditoriums equipped with large screen video projection systems where librarians give a lecture and demonstration on how to use the Library's on-line catalog, CD-ROM databases and other information resources available on the ChapNet (the University network which is linked to the internet). A brief introduction was also given to the internet and World Wide Web (35 minutes). An information access booklet was distributed which serves as a portable reference guide for students throughout the academic year.

2. Students were given diskettes for the interactive multimedia program 'Library Explorer' and instructed to go

[1] For sample of report print-out, see Appendix 1.
[2] The InfoMagic video, mentioned earlier, was not finished in time for the Fall semester. It has since been completed and will be used to kick-off the Library's Fall 1996 training program.

to the computer lab individually over the course of the next week to complete the tutorial ('Library Explorer' takes 25 to 40 minutes to complete). Students were instructed to turn-in diskettes to the Library after finishing the tutorial, so that their data files could be printed-out as progress reports and distributed to their instructors. This includes a survey questionnaire which supplies the university an 'information literacy' profile of incoming students, as well as soliciting user comments and suggestions about the program.

3. The instructors for Freshman Seminar (a course which every incoming freshman is required to take) then give research assignments to all of their students. Instructors accompany their classes to the Library where they are assisted in actual on-line research by assigned librarians.

By October 1995, 298 students (out of 330 incoming Freshman) had returned diskettes to the library. The students' individual data files, which were stored on the diskettes, were printed-out and distributed to the students' Freshman Seminar instructors. Of the 298 students taking the tutorial, 251 chose to complete the 'computer literacy' and 'student feedback' surveys which were part of the tutorial program (an 84 percent participation rate). These survey data files were also examined and the results published for use by the Library, University administration and Freshman instructors (see Appendix 2).

Conclusion

This paper proposes a new model for developing information access skills in an academic environment. In order to meet the increasing demand for 'research competence' among students and faculty, it is necessary to move beyond traditional lecture formats and develop interactive multimedia instructional units which exploit ongoing advances in digital imaging, video and sound technologies. Such advances not only make instructional units more compelling but, when developed in an interactive programming environment, allow learners to practice realistic simulations of internet navigation and database search techniques. By increasing 'learner control' of the learning environment, student retention may be better than in more passive learning modes such as watching videos and listening to lectures.

The proposed model includes procedures for involving 'in-house' artistic talent and user input in the development process, ways of integrating analog video and interactive multimedia units into the overall university curriculum and allows for the automatic tracking and reporting of student progress. Future refinements of the model which are being considered include having tracking reports transmitted to files on a remote server rather than directly onto student diskettes and to add a virtual walk-through component.

For the model proposed here to have a major impact on 'information literacy' or competence on campus, it must be both required and relevant to the information access needs of the institution. To be effective, its implementation must be closely coordinated with both the Library and the instructors of required freshman courses. The success or failure of this model for information access training will be closely monitored and the results presented in future papers.

Appendix 1

INSTRUCTOR: Johnson
STUDENT: Smith, Johnny 987-984-7743

Date: 8/16/95

Begin: 3:01 PM

Out of 20 units, Smith, Johnny finished:

1. Overview of Chapman Information Services
2. How to sign-up for Chapnet/Internet account
3. Introduction to the on-line catalog (OPAC)
4. How to use call numbers to find books
5. Intro to LC classification system. Location of reference vs. monographs
6. Practice author search
7. Intro to Title and Subject searching
8. Intro to theory of Keyword searching
9. How to log-on to Chapnet/Internet
10. Using the Internet to access other libraries
11. On-site access policy for Cal State Fullerton and UCI libraries
12. The InterLibrary Loan (ILL) alternative
13. Using the Library WEB page to place an ILL order
14. How to find journal articles via Library CD-ROM indexes (includes off-campus access
15. Logging-on to the PAIS CD-ROM Periodical Index
16. Boolean searching using 'and' and 'or'
17. How to find Journals in the Library
18. Using Library WEB page to order journal articles (ILL)
19. Using 'Web Crawler' to search the WEB & Intro to Netscape browser
20. Intro to PINE -- Sending and Receiving E-Mail

End: 3:28 PM

Appendix 2

On-Line Survey Results

Student Feedback Survey

1. Age 17: 51 (20%), 18: 168 (65%), 19: 30(12%), 20: 2(1%), 21: 3 (1%)

2. Sex Male: 98 (38%), Female: 157 (62%)

3. Native language English: 227 (88%), Other: 30 (12%)

4. Computer tutorial was

   Very interesting: 16 (6%), Interesting: 160 (62%),
   Not interesting: 36 (14%), Boring: 46 (18%)

5. Too short: 2 (1%), Too long: 138 (53%), Just right: 121 (46%)

6. Easy to use: 250 (99+%), A little difficult: 0, Difficult: 0,
   Very difficult: 1 (-1%)

7. Examples were Very clear: 167 (64%), Clear: 87 (34%),
   Not so clear: 4 (2%), Confusing: 0

8. I want to see more multimedia programs like this

   yes 185 (73%) no 69 (27%)

9. Student criticisms of program and suggestions for improvement:

Computer Literacy Survey

10. Before coming to Chapman, I used a computer at home or at school

    Never: 19 (7%), 0-1 hr/week: 65 (26%), 1-2 hrs/week: 57 (22%),
    2-5 hrs/week: 62 (25%), Over 5 hrs/week: 52 (20%)

11. I have used a computer at home or in school

    Over 3 years: 134 (51%), 2-3 years: 28 (11%), 1-2 years: 30 (12%),
    7-12 months: 13 (5%), 1-6 months: 43 (17%), Never: 9 (4%)

12. I think my computer skills are

Excellent: 100 (27%), Good: 71 (34%), Fair: 88 (39%), Poor: (0%)

Before coming to Chapman, I used

13.	Internet:	yes 66 (26%)	no 190 (74%)
14.	World Wide Web:	yes 28 (11%)	no 229 (89%)
15.	Library on-line catalog:	yes 163 (62%)	no 98 (38%)
16.	Word processor:	yes 229 (89%)	no 27 (11%)
17.	Database:	yes 129 (50%)	no 129 50%)
18.	Spreadsheet:	yes 137 (53%)	no 121 (47%)
19.	Paint/Draw:	yes 192 (75%)	no 65 (25%)
20.	Other programs:	yes 210 (82%)	no 47 (18%)

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